AF/IFW

Attorney Docket No. RANPP0349USA

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re PATENT application of:

Applicant:	Joseph J. Harding
Application No.:	10/700,364
Filing Date:	November 2, 2003
Title:	PACKAGING SYSTEM WITH VOLUME MEASUREMENT
Examiner:	Eugene Lee Kim
Art Unit:	3721

APPEAL BRIEF

MS Appeal
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This brief is submitted in support of the appeal of the decision of the Examiner mailed August 1, 2005, finally rejecting claims 1-10 and 12-15 of the above-identified application.

I. Real Party in Interest

The real party in interest in the present appeal is the assignee, Ranpak Corp.

II. Related Appeals and Interferences

Appellant, appellant's legal representatives, and/or the assignee of the present application are unaware of any appeals or interferences which will directly affect, which will be directly affected by, or which will have a bearing on the Board's decision in the pending appeal.

III. Status of Claims

Claims 1-10 and 12-15 are pending and stand finally rejected. Claims 11 and 16 have been canceled. A copy of the claims is attached as Appendix A.

IV. Status of Amendments

An amendment is being filed concurrently herewith to cancel withdrawn claim 16.

V. Background

In many instances, dunnage material is used to top-fill a container in which one or more objects have been placed, thereby to fill any remaining void in the container and thus prevent or minimize any shifting movement of the object or objects in the container during shipment. In a prevalent practice at the time the application was filed, the operator of a dunnage dispenser would observe the container as it is being filled and stop the dispenser when the container appeared to be full. A common tendency, however, was for the operator to overfill or underfill the container, resulting in waste or insufficient protection for the object or objects being shipped.

U.S. Patent No. 5,871,429 to Harding discloses a packaging system comprising a probe (302) for sensing the void in a container and a dunnage converter having a controller (216') for controlling the feeding and cutting of a strip of dunnage material such that the amount of dunnage material needed to fill the void in the container is produced. Harding also suggests that a mechanical probe may be used to probe a container in one or more locations to determine the amount of dunnage material needed to fill the void. The mechanical probe may also be used in conjunction with a bar code reader or used in conjunction with or supplanted by sensors which sense the dimensions or degree of fill of the container, including optical and ultrasonic sensors. (See Harding, col. 18, lines 10-41 and FIG. 12.)

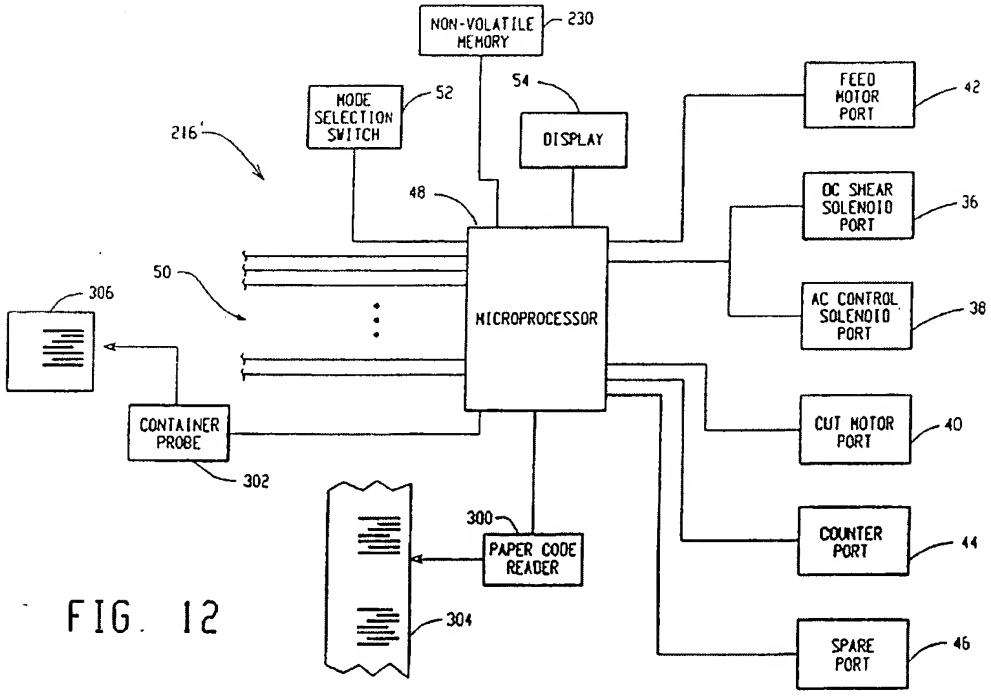


FIG. 12

Two other patents disclose dimensional sensors in further detail. U.S. Patent No. 3,819,918 to Hale discloses a device (12) for measuring and recording the length, width, height, and volume of a container as it moves along a conveyor system (22). The conveyor system (22) moves the container past two rows of photo transistors (19 and 20) upon which respective curtains of parallel light rays are directed from quartz

lamps (16a and 16b) toward the photo transistors (19 and 20) via respective parabolic mirrors (14a and 14b). (See Hale, abstract and FIGS. 1 and 2.)

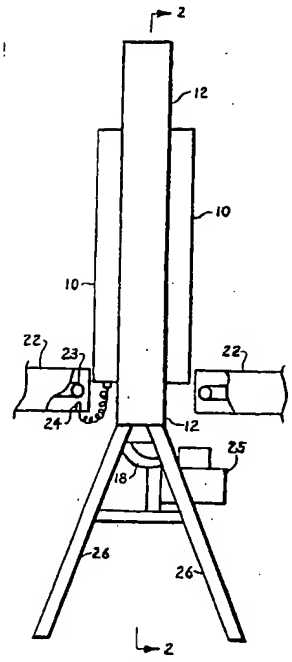


FIG. 1

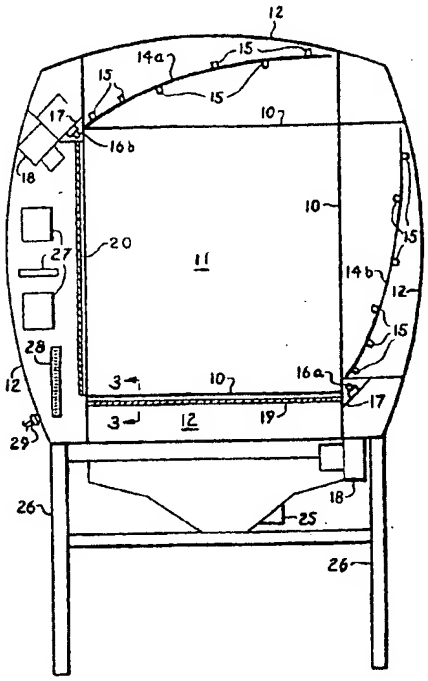


FIG. 2

U.S. Patent No. 5,719,678 to Reynolds, et al., discloses an apparatus (100) for automatically determining the volume of an object (118) using a height sensor (120) and a width sensor (122) positioned in generally orthogonal relationship. The sensors (120 and 122) each include a plurality of charge coupled devices that sense light reflected from the surface of the object (118). (See Reynolds, abstract and FIG. 1A.)

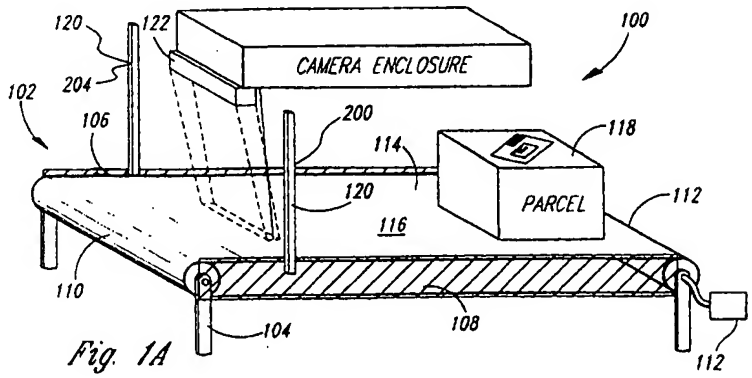


Fig. 1A

VI. Summary of Claimed Subject Matter

In accordance with claim 1, the invention provides a void-fill system (10) for automatically determining and supplying an amount of dunnage material sufficient to fill the void (84) left in a container (32) in which one or more objects (85-90) have been placed. The system (10) includes a dunnage dispenser (12) which is operable to dispense a controlled amount of a dunnage material, a container scanner (14) having a scan area (16), and a logic device (76). (See FIGS. 1, 4 and 6, specification, p. 4, lines 22-30.)

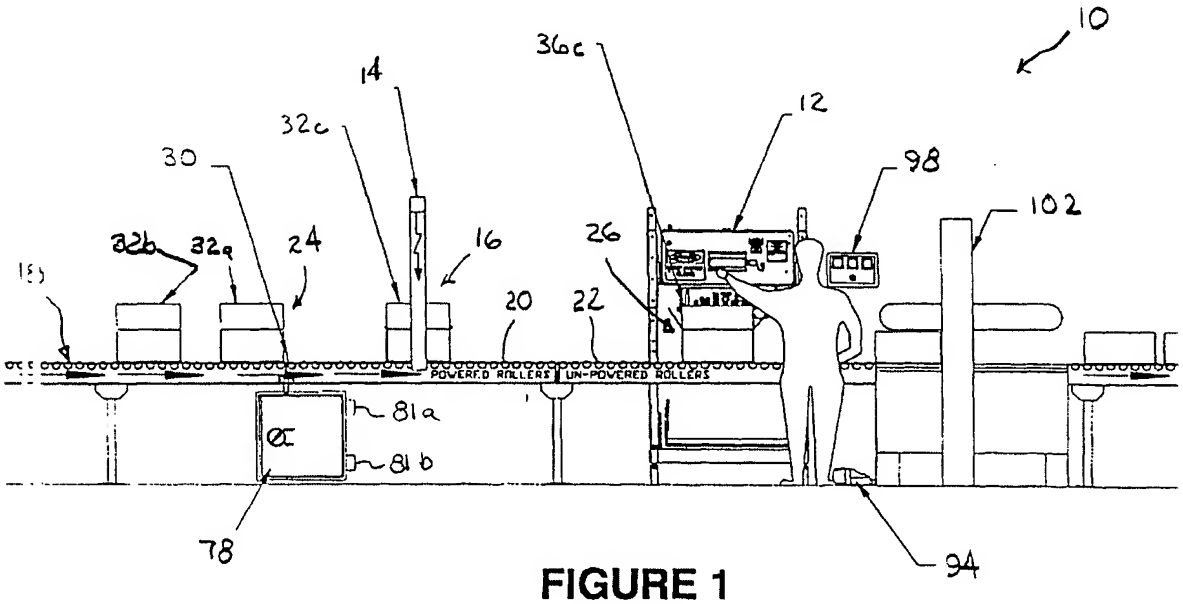


FIGURE 1

FIGURE 4

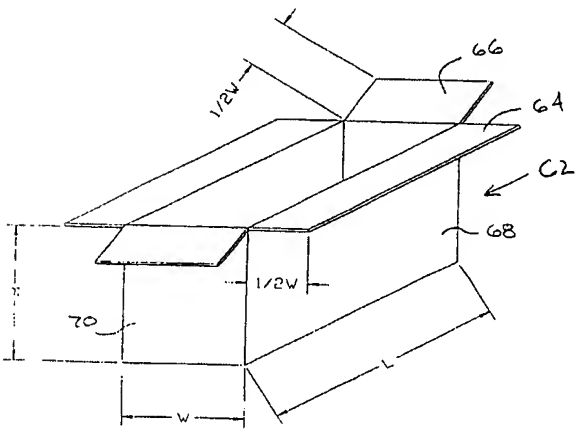
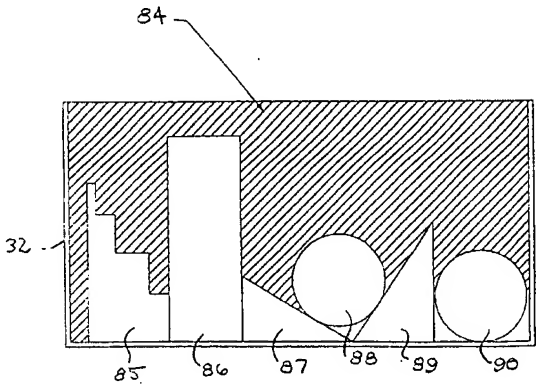


FIGURE 6



The container scanner (14) includes a height sensor (44) for sensing a height characteristic (H) of a container (32), a width sensor (46) for sensing a width characteristic (W) of the container (32), and a contour sensor (48) for sensing a contour characteristic of the one or more objects (85-90) in the container (32). The logic device (76) is operable to (a) process sensed characteristic information received from the height sensor (44), width sensor(46) and contour sensor (48), (b) determine the amount of dunnage material needed to fill the void (84) left in the container (32) not occupied by the one or more objects (85-90), and (c) command the dunnage dispenser (12) to dispense the determined amount of dunnage material. (See FIGS. 1-4 and 6, and specification p. 4, lines 27-30, p. 5, line 16 through p. 8, line 6, and p. 9, line 2.)

FIGURE 2

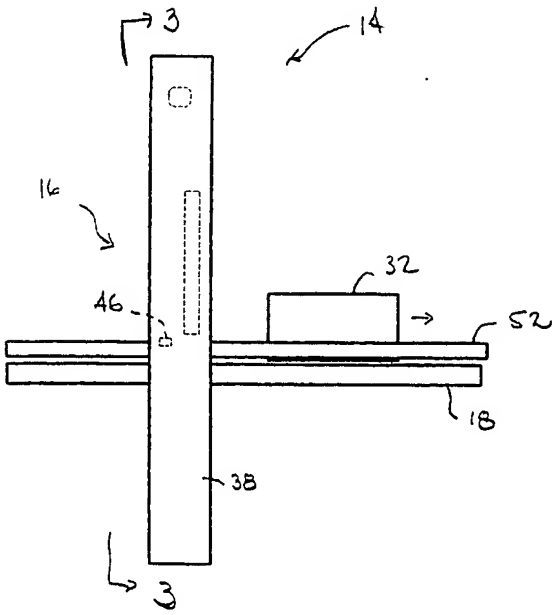
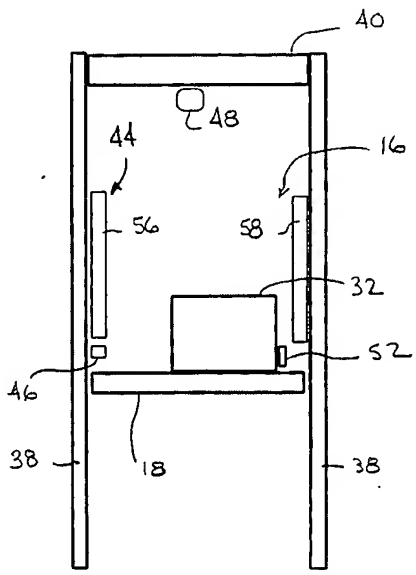


FIGURE 3



The system (10) also includes a selector device (98, 80, 94) connected to the logic device (76) for enabling the selection of a void-fill density from a plurality of void-fill densities. The logic device (76) varies the amount of dunnage material to be dispensed per measured volume of void, thereby to provide the selected void-fill density. (See p. 11, lines 3-31.)

In accordance with claim 12, the invention also provides a void-fill system (10) with a dunnage dispenser (12), a void-measuring apparatus (14) which measures the amount of void left in a container (32) after one or more objects have been placed in the container, and an input device (98, 80, 94) connected to the void-measuring apparatus (14) which enables the selection of a void-fill density from a plurality of void-fill densities.. The void-measuring apparatus (14) is operative to command the dunnage dispenser (12) to dispense a prescribed amount of dunnage material. (See FIGS. 1-6, and specification p. 4, lines 27-30, p. 5, line 16 through p. 8, line 6, and p. 9, line 2.) The void measuring apparatus, in response to a selected void-fill density, varies the amount of dunnage material that the dunnage dispenser is commanded to dispense per measured volume of void, thereby to provide the selected void-fill density. (See p. 11, lines 3-31.)

In accordance with claim 14, the invention provides an apparatus for automatically determining an amount of dunnage material sufficient to fill the void left in a container (32) in which one or more objects have been placed. The apparatus includes a logic device (76) and an input device (98, 80, 94) connected to the logic device which enables selection of a void-fill density from a plurality of void-fill densities. The logic device is operable to (a) process sensed characteristic information of a container (32) in which one or more objects have been placed, (b) determine the amount of dunnage material needed to fill the void left in the container not occupied by the one or more objects based on the selected void-fill density, and (c) command a dunnage dispenser (12) to dispense the determined amount of dunnage material. (See FIGS. 1-6, and specification p. 4, lines 27-30, p. 5, line 16 through p. 8, line 6, p. 9, line 2, and p. 11, lines 3-31.)

In accordance with claim 15, the invention provides an apparatus for automatically determining an amount of dunnage material sufficient to fill the void left in a container (32) in which one or more objects have been placed. The system (10) includes a container scanner (14) having a scan area (16). The container scanner (14) includes a height sensor (44) for sensing a height characteristic (H) of a container (32),

a width sensor (46) for sensing a width characteristic (W) of the container (32), and a contour sensor (48) for sensing a contour characteristic of the one or more objects in the container (32). The system (10) further includes a logic device (76) that is operable to (a) process sensed characteristic information received from the height sensor (44), width sensor(46) and contour sensor (48), (b) determine the amount of dunnage material needed to fill the void left in the container not occupied by the one or more objects, and (c) command a dunnage dispenser (12) to dispense the determined amount of dunnage material. (See FIGS. 1-6, and specification p. 4, lines 27-30, p. 5, line 16 through p. 8, line 6, and p. 9, line 2.)

VII. Grounds of Rejection to be Reviewed on Appeal

Whether claims 1-10 and 12-15 are properly rejected as being unpatentable under 35 U.S.C. § 103(a) over U.S. Patent No. 5,871,429 to Harding (referred to herein as "Harding") in view of either U.S. Patent No. 5,719,678 to Reynolds, et al. (referred to herein as "Reynolds") or U.S. Patent No. 3,819,918 to Hale (referred to herein as "Hale").

VIII. Argument

The claims on appeal define a system or apparatus with a device for enabling the selection of a void-fill density from a plurality of void-fill densities, along with a device for commanding a dunnage dispenser to dispense the determined amount of dunnage to provide the selected density. The applied prior art references fail to teach or suggest such a density-selection device. Therefore the rejection is improper and should be reversed.

The Examiner has taken the position that Harding discloses or suggests substantially all of the limitations of the claims. In particular, the Examiner has taken the position that (1) Harding discloses a lookup table which corresponds to a logic device that determines the amount of dunnage to make for a container, and (2) that the

lookup table inherently provides for making different amounts of dunnage, thereby providing multiple void-fill densities.

> Since there is a lookup table which corresponds to a logic controller 48, there are inherently going to be multiple void-fill densities in the look-up table to make a desired or varied amount of dunnage.

Paper No./Mail Date 07072005, p. 2.

In Harding's system a device reads a code printed on a box, such as a bar code, finds that code in a lookup table, retrieves the corresponding information about the number and length of dunnage pads to produce, and instructs a dunnage converter to produce the determined quantity of dunnage pads (see Harding, col. 18, lines 19-24).

A lookup table generally provides a one-to-one correspondence between the code, such as a bar code, and the corresponding instruction, such as the number and length of dunnage pads to produce. Although Harding's lookup table can be used to determine the required number and length of dunnage pads to be produced for a particular code, no teaching or suggestion has been found in Harding of a means for selecting varying the numbers and/or lengths of dunnage pads dispensed for a particular volume to provide different densities.

Even if Harding's lookup table did include multiple amounts of dunnage for a given volume, Harding fails to teach or suggest a means for selecting between them.

The secondary references do not overcome Harding's deficiencies in failing to teach or suggest a device for selecting among different densities of dunnage for a container. Hale and Reynolds describe dimension sensors in greater detail than Harding, but like Harding neither Hale nor Reynolds appear to teach or suggest a device for selecting from among a plurality of densities of dunnage. Reversal of the rejection is requested.

IX. Conclusion

In view of the foregoing, it is respectfully submitted that the claims are patentable over the applied art and that the final rejection should be reversed.

Respectfully submitted,

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CERTIFICATE OF MAILING

I hereby certify that this paper (along with any paper or item referred to as being attached or enclosed) is being deposited with the U.S. postal service on the date shown below with sufficient postage as first-class mail in an envelope addressed to MS Appeal, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

Date: 6 March 2006

Christopher B. Jacobs

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Appendix A

Claims on Appeal

1. (Previously Presented) A void-fill system for automatically determining and supplying an amount of dunnage material sufficient to fill the void left in a container in which one or more objects have been placed, comprising:

a dunnage dispenser which is operable to dispense a controlled amount of a dunnage material;

a container scanner having a scan area, the container scanner including a height sensor for sensing a height characteristic of a container, a width sensor for sensing a width characteristic of the container, and a contour sensor for sensing a contour characteristic of the one or more objects in the container;

a logic device that is operable to

process sensed characteristic information received from the height sensor, width sensor and contour sensor;

determine the amount of dunnage material needed to fill the void left in the container not occupied by the one or more objects; and

command the dunnage dispenser to dispense the determined amount of dunnage material; and

a selector device connected to the logic device for enabling the selection of a void-fill density from a plurality of void-fill densities, and wherein the logic device, in response to a selected void-fill density, varies the amount of dunnage material to be dispensed per measured volume of void, thereby to provide the selected void-fill density.

2. (Original) A void-fill system as set forth in claim 1, further comprising a conveyor for conveying the container through the scan area.

3. (Original) A void-fill system as set forth in claim 2, wherein the logic device calculates a length characteristic of the container as a function of the sensed characteristic information received from at least one of the sensors and the rate at which the conveyor conveys the container through the scan area.

4. (Original) A void-fill system as set forth in claim 2, wherein the contour sensor continuously senses the top surface of the one or more objects in the container as the container is moved through the scan area by the conveyor.

5. (Original) A void-fill system as set forth in claim 1, wherein the width sensor senses the distance a side of the container is spaced from a reference point.

6. (Original) A void-fill system as set forth in claim 1, wherein the width sensor is an infrared distance sensor.

7. (Original) A void-fill system as set forth in claim 1, wherein the contour sensor is an optic laser scanner.

8. (Original) A void-fill system as set forth in claim 1, wherein the height sensor includes an emitter array of emitters and a receiver array of receivers disposed on opposite transverse sides of the scan area.

9. (Original) A void-fill system as set forth in claim 8, further comprising a container conveyor for conveying the container through the scan area; and wherein the container scanner includes a frame having a pair of uprights straddling the container conveyor and a cross beam supported atop the uprights at a fixed distanced from the

container conveyor, and wherein the emitter and receiver arrays are respectively mounted to the uprights, and the contour sensor is mounted to the cross beam.

10. (Original) A void-fill system as set forth in claim 2, further comprising a stop gate associated with the container conveyor for controllably permitting passage of containers into the scan area.

Claim 11 (Canceled)

12. (Original) A void-fill system for automatically determining and producing an amount of dunnage material sufficient to fill the void left in a container in which one or more objects have been placed, comprising:

a dunnage dispenser which is operable to dispense a controlled amount of a dunnage material;

a void-measuring apparatus which measures the amount of void left in a container after one or more objects have been placed in the container, the void-measuring apparatus being operative to command the dunnage dispenser to dispense a prescribed amount of dunnage material; and

an input device connected to the void-measuring apparatus which enables selection of a void-fill density from a plurality of void-fill densities, and wherein the void-measuring apparatus, in response to a selected void-fill density, varies the amount of dunnage material that the dunnage dispenser is commanded to dispense per measured volume of void, thereby to obtain the selected void-fill density.

13. (Original) A void-fill system as set forth in claim 12, wherein the void-measuring apparatus includes

a container scanner having a scan area, the container scanner including a height sensor for sensing a height characteristic of a container, a width sensor for sensing a width characteristic of the container, and a contour sensor for sensing a contour characteristic of the one or more objects in the container; and

a logic device that is operable to

process sensed characteristic information received from the height sensor, width sensor and contour sensor;

determine the amount of dunnage material needed to fill the void left in the container not occupied by the one or more objects based on the selected void-fill density; and

command the dunnage dispenser to dispense the determined amount of dunnage material.

14. (Original) An apparatus for automatically determining an amount of dunnage material sufficient to fill the void left in a container in which one or more objects have been placed, comprising:

a logic device; and

an input device connected to the logic device which enables selection of a void-fill density from a plurality of void-fill densities; and

wherein the logic device is operable to

process sensed characteristic information of a container in which one or more objects have been placed;

determine the amount of dunnage material needed to fill the void left in the container not occupied by the one or more objects based on the selected void-fill density; and

command a dunnage dispenser to dispense the determined amount of dunnage material.

15. (Previously Presented) An apparatus for automatically determining an amount of dunnage material sufficient to fill the void left in a container in which one or more objects have been placed, comprising:

a container scanner having a scan area, the container scanner including a height sensor for sensing a height characteristic of a container, a width sensor for sensing a width characteristic of the container, and a contour sensor for sensing a contour characteristic of the one or more objects in the container;

a logic device that is operable to process sensed characteristic information received from the height sensor, width sensor and contour sensor;

determine the amount of dunnage material needed to fill the void left in the container not occupied by the one or more objects; and

command a dunnage dispenser to dispense the determined amount of dunnage material; and

a selector device connected to the logic device for enabling the selection of a void-fill density from a plurality of void-fill densities, and wherein the logic device, in response to a selected void-fill density, varies the amount of dunnage material to be dispensed per measured volume of void, thereby to provide the selected void-fill density.

Claim 16 (canceled).